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Applicants : MITSUBISHI ELECTRIC CORPORATION

Title : Hand Dryer

[0008] The invention is made to solve the problems. It is a first object of the invention to provide a hand dryer with a good sense of use in which hands can be rapidly dried in a sanitary manner through air injection. A second object is to prevent noise caused by injection of high-speed air current.

[0009]

[Means for Solving Problem] In a hand dryer according to claim 1 of the invention, to solve the problems, high-speed air current from a high-pressure air current generator that generates high-speed air current is jetted through a nozzle in a hand insertion unit that is open to a front surface and sides of a box body and that is wide enough to accommodate hands. An air blowing unit of at least an upper-side nozzle of the nozzle includes a first nozzle hole row arranged in a lateral direction of the hand insertion unit and a second nozzle hole row arranged nearer an inlet of the hand insertion unit than the first nozzle hole row.

[0010] In the hand dryer according to claim 2 of the invention, to solve the problems, the air blowing unit of the upper-side nozzle in the hand dryer of claim 1 includes a dividing configuration in which air current that is squeezed and carried inside into a side of the first nozzle hole and a side of the second nozzle hole is divided.

[0011] In a hand dryer according to claim 3 of the invention, to solve the problems, high-speed air current from a high-pressure air current generator that generates high-speed air current is jetted through a nozzle in a hand insertion unit that is open to a front surface and sides of a box body, that is wide enough to accommodate hands, and that has an outlet near the side of its bottom. An air blowing unit of each of the nozzles is formed as a nozzle hole row aligned in a lateral direction of the hand insertion unit. At least an upper-side nozzle hole row has a biased configuration in which an amount of jetted wind is biased toward the outlet of the hand insertion unit or an angle at which wind is jetted is biased.

[0012] In a hand dryer according to claim 4 of the invention, to solve the problems, high-speed air current from a high-pressure air current generator that generates high-speed air current is jetted through a nozzle in a hand insertion unit that is open to a front surface and sides of a box body and that is wide enough to accommodate hands. An air blowing unit of each of the nozzles is formed as a nozzle hole row that has small holes linearly arranged in a lateral direction of the hand insertion unit. A breath unit that has a larger pitch than the other pitches among small holes is partly set in the nozzle hole row on one of the nozzles.

[0013]

[Operation] In the hand dryer according to claim 1 of the invention, to solve the problems, high-speed air current generated in the high-pressure air current generator is jetted through the nozzle into the hand insertion unit and moisture attached to hands is blown away from the hands by the high-speed air current only by inserting wet hands in the hand insertion unit in such a

manner as to hold them against the nozzle. Then, when water is blown out of the hands in the hand insertion unit, part of water blown to an inlet side of the hand insertion unit is blocked by high-speed air current jetted from the second nozzle hole row and is not blown beyond the hand insertion unit.

[0014] In the hand dryer according to claim 2 of the invention, to solve the problems, in addition to the operation in claim 1, air current that is squeezed and carried inside into the first nozzle hole row and the second nozzle hole row is smoothly divided, so that disturbance is prevented from generating at a current dividing portion through which air current is divided into the first nozzle hole row side and the second nozzle hole row side.

[0015] In the hand dryer according to claim 3 of the invention, to solve the problems, high-speed air current generated in the high-pressure air current generator is jetted through the nozzle into the hand insertion unit and moisture attached to hands are blown away from the hands by the high-speed air current only by inserting wet hands in the hand insertion unit in such a manner as to hold them against the nozzle. Then, blown water is led to the outlet arranged near the side of the hand insertion unit based on bias in an amount of wind blown by the high-speed air current or bias in an angle at which wind is blown.

[0016] In the hand dryer according to claim 4 of the invention, to solve the problems, high-speed air current generated in the high-pressure air current generator is jetted through the nozzle into the hand insertion unit and moisture attached to hands is blown away from the hands by the high-speed air current only by inserting wet hands in the hand insertion unit in such a manner as to hold them against the nozzle. High-speed air currents by which water is

blown away from hands are opposed to each other, so that they are hit at the middle portion. Therefore, low-frequency sound is consecutively generated. However, a breath unit that has a larger pitch among small holes is set on one side, so that a portion corresponding to a breath can be formed at the collision portion. Thus, low-frequency sound caused by collision is changed in sound quality and its consecutiveness is stopped.

[0024]..... The other edges of the upper air duct 16 and the lower air duct 17 are expanded like a flat trumpet and their slit-shaped longitudinal opening edges are attached to an upper blowing nozzle 18 and a lower blowing nozzle 19, respectively. An air blowing unit that has a nozzle hole row 27 in which a plurality of small nozzle holes 26 is laterally aligned with the same pitch among them is formed in the upper blowing nozzle 18 and the lower blowing nozzle 19. High-pressure air sent from the high-pressure air current generator 3 is converted to wind with a wind speed of 50m/s to 150m/s and can be blown through the air blowing unit.

[0026] As shown in Fig. 2, in addition to the nozzle hole row 27 laterally arranged in the hand insertion unit 1, which is taken as a first nozzle hole row 27, a second nozzle hole row 28 is arranged in the air blowing unit of the upper blowing nozzle 18. The second nozzle hole row 28 is arranged in parallel to and immediately above the first nozzle hole row 27 as a hole row with a slightly larger pitch among small holes than the pitch among small holes in the nozzle hole row 27 and the small holes of the second nozzle hole row 28 are centered. As shown in Fig. 3, a blowing direction of the second

nozzle hole row 28 is not inclined unlike that of the first nozzle hole row 27 and high-speed air current is jetted in a lateral direction as it is in the second nozzle hole row 28. The second nozzle hole row 28 with such configuration can be also arranged in the lower blowing nozzle 19 and can be arranged in at least either one of the upper blowing nozzle 18 and the lower blowing nozzle 19.

[0037]..... In other words, as shown in Fig. 6, a bias 31 is provided in the first nozzle hole row 27 as a pitch among small holes in such a manner that an amount of wind blown to part that corresponds to the outlet 5 arranged near the side of the hand insertion unit 1 is smaller than the other part.

[0039]..... As shown in Fig. 7, a breath unit 32 is set in some sites (two in the drawing) each of which includes a larger pitch among small holes than in the other sites at part of the first nozzle hole row 27.